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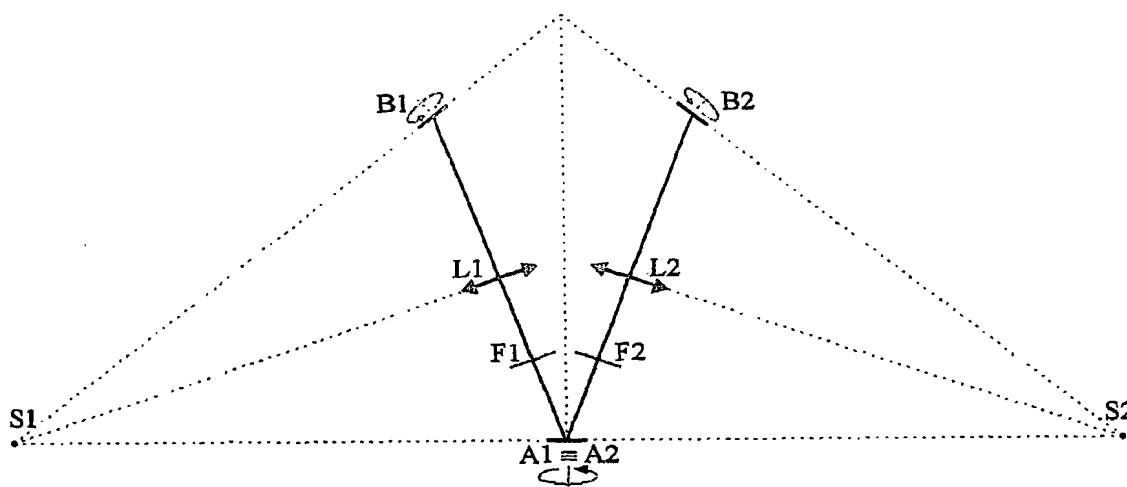
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(54) Title: MASKLESS OPTICAL INTERFEROMETRIC LITHOGRAPHY



(57) Abstract: An optical device generated by interferometric lithography, in the form of a surface relief pattern that diffracts light, to be used mainly in optical security, produced by optical systems compliant with the Schimpflug and hinge Rules containing: two identical lenses L1 and L2, two physical object location B1 e B2 and one image plane  $A1 \equiv A2$ . No physical mask is needed throughout the origination process, thus eliminating any kind of border effects. The device actually implements an in-plane focused hologram, with a complex surface pattern of valleys and ridges with a non-trivial generating function, which is, by itself, both an additional security feature of the device and its fingerprint. The time to generate the optical device is proportional to the number of colours specified for the reference geometry and not depend on the overall area of the optical device.

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